Mortality update for the Pantex weapons facility

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In 1985, Acquavella, et al., reported results of a mortality study of white male workers ever employed at the Pantex Plant, a nuclear weapons fabrication facility, from 1951 to 1978. The researchers observed a strong healthy worker effect overall, but saw non-significant elevations for leukemia and brain cancer. The National Institute for Occupational Safety and Health (NIOSH) has expanded the study population to include workers of both genders and all races employed between 1951 and 1978, with vital status follow-up through 1995. Summary Standardized Mortality Ratios (SMR) were generated for this “full NIOSH cohort”. Workers with complete employment records (those terminating or deceased before 1979), were included in SMR and Standardized Rate Ratio (SRR) duration of employment analyses. The all-cause SMR for this early-terminating subcohort (0.98) was higher than for the full NIOSH (SMR=0.81) and Acquavella cohorts (SMR=0.72). Brain cancer was not elevated in the early-terminating subcohort (SMR=0.67). Leukemia mortality was elevated but showed no evidence of a positive exposure-response relation with increasing duration of employment. The SMR for prostate cancer was as expected, but the SRR showed a statistically significant positive relation with employment duration, with a high elevation (SRR= 7.57, 95% CI=1.03-55.72, 10-year lag) among workers employed at least 20 years. Multiple myeloma also exhibited a statistically significant positive exposure-response. Due to the potential for bias in the early-terminating subcohort, caution should be exercised in generalizing the exposure-response results.